

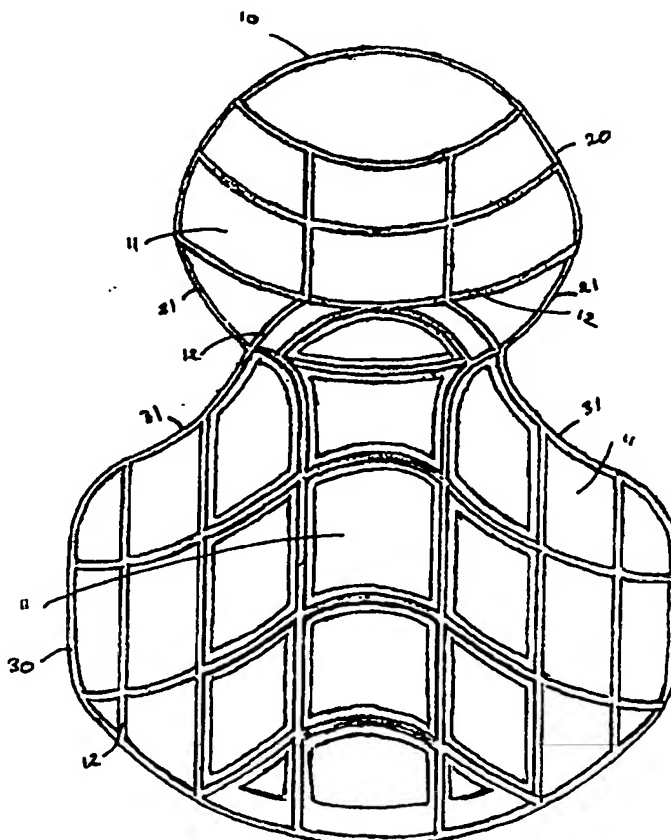


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(21) International Application Number: PCT/AU95/00847 (22) International Filing Date: 14 December 1995 (14.12.95) (30) Priority Data: PN 0248 21 December 1994 (21.12.94) AU (71) Applicant (for all designated States except US): KNEEON AUSTRALIA PTY. LIMITED [AU/AU]; 245 Whitecombes Road, Drysdale, VIC 3222 (AU). (72) Inventors; and (75) Inventors/Applicants (for US only): MCFARLANE, Allan, Wilfred [AU/AU]; 245 Whitecombes Road, Drysdale, VIC 3222 (AU). MCFARLANE, Wendy, Mary [AU/AU]; 245 Whitecombes Road, Drysdale, VIC 3222 (AU). (74) Agent: A. TATLOCK & ASSOCIATES; 208 Elgin Street, Carlton, VIC 3053 (AU).	(81) Designated States: AL, AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TT, UA, UG, US, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG), ARIPO patent (KE, LS, MW, SD, SZ, UG). Published <i>With international search report.</i>	

(54) Title: IMPROVED PROTECTIVE PADDING**(57) Abstract**

A padding device for the protection of the human body which comprises at least one pad (11) of a flexible material adapted to effectively hinge over a joint area (12) when this joint is flexed. The padding device can be adapted to either be directly attached to the body or can be either permanently or removably affixed to clothing.



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IMPROVED PROTECTIVE PADDING

This invention relates to the provision of a padding device for the protection of the human body and in particular to the provision of a padding device for covering the knees or elbows or any part of the body where the padding would be required to bend.

People frequently require protection for knees and other parts of their bodies when either playing sport, or in the workplace, gardening or carrying out activities in which it is possible that contact injuries can occur. Babies and children also are particularly vulnerable to knee and other contact injuries as are invalids and people confined to wheelchairs.

Apart from contact injuries, knees particularly can be damaged or become painful when either sport or routine household or other occupations require kneeling on rough surfaces.

Conventionally protection has been provided in the form of knee or elbow pads which are usually attached to the body with straps as required and are generally both rigid and uncomfortable. Such pads generally take the form of a cushioning device the straps of which dig into the wearers legs upon kneeling.

Other approaches to the problem have included the manufacture of padded clothing however this has drawbacks in that the padding is permanently in place and is rarely effective as the padding material required has to be particularly thick and therefore awkward to wear.

An alternative approach along these lines has been to manufacture clothing with pockets in which protective padding can be placed however, once again, the garments are specific purpose designed and are not conventional clothing.

It is the object of this invention to provide non rigid protective padding which can either be conventionally applied to the body by the provision of attached straps or other means or be applied to ordinary clothing without the necessity for the clothing to be specifically manufactured with pockets or other devices to hold it.

While the concept of such a pad will can be adapted to be applied to padding for any part of the body, for convenience in this specification it will be referred to as a knee pad.

The invention, in its broadest sense, comprises a pad device consisting of at least one pad of a flexible material adapted to effectively hinge at one or more position on the device.

The material from which the pad is constructed is not germane to this invention however it is has been found that rubber is most appropriate although any rubber like material could be used as long as it was sufficiently flexible.

In the embodiment of the invention in which the pad is attached directly to the knee area it is envisaged that the most comfortable arrangement would be for straps to be used which are a continuation of some backing material to the pad device, although this does not prohibit direct connection of straps to the pad device.

The method by which any straps provided connect together is not specific in this invention although for ease of application and release a velcro type attachment is preferred.

In one embodiment of the invention it is envisaged that the pad device could be provided with some means of adhering to the clothing. If this adhesion was to be permanent it could be effected by the provision of a sticky surface which could be ironed on to a garment or some appropriate glue could be used. Alternatively, if the pad device was to be removable some sort of adhesion technique such as the use of velcro could be employed although the precise method used is not an aspect of this invention.

In this invention a pad device is provided which is flexible and which can if desired be compartmentalised into an array of individual pads, arranged about the area to be protected, either by the removal of part of the pad material or it can actually consist of an array of discrete components which can be affixed to a garment if required.

In order that the invention may be more readily understood a preferred embodiment of the invention as it relates to knee protection will be described with reference to the accompanying drawings:

Fig. 1 shows a schematic diagram of a pad device providing an effective arrangement of pads suitable for providing knee protection.

Fig. 2 shows a schematic diagram of the pad device of Fig. 1 in longitudinal cross-section.

Figure 1. shows a pad device 10 for the knee shaped to provide an area 20 which extends to cover the patella area and an area 30 which covers the lower part of the joint and provides cushioning when a person is actually kneeling.

In the embodiment shown there is an effective array of individual pads 11 formed by the excision of some of the material of the pad device to form grooved channels 12 around the individual pads 11.

The effect is such that the pad device can flex easily along these channels such that the individual pads 11 are effectively hinged between each adjacent pad.

The precise number and shape of the individual pads 11 is not germane to this invention however it is envisaged that it would be desirable to have at least one recessed area 12 between the upper and lower areas of the pad device in order to facilitate bending of the device when kneeling.

The precise shape of the overall pad device 10 can be any shape desired and it is envisaged that novelty shapes such as animals and suchlike may be used particularly for children's wear. In this preferred embodiment the shape of the pad device 10 is designed so that, when the wearer is kneeling, adjacent edges 21 and 31 abut and the entire knee area is encased in the pad.

In this preferred embodiment the pads 11 along the centreline of the pad device are thicker than those at the outside edges and there is a general tapering in the thickness of the pads from the centre of the device to the outside edges (Figure 2).

In a further embodiment of the invention in which the pad array forming the device is intended to be permanently affixed to clothing the individual pads 11 can in fact be discrete and not connected by any excised channels. It is envisaged that in this

embodiment individual pad elements could be provided on some backing which would adhere to clothing.

The result is that knee protection is provided by an array of padding elements, each of which is individually flexible, arranged on the fabric of the desired garment such that the flexibility of the fabric contributes to the overall flexibility of the effective knee pad.

The preferred embodiment of the invention is however an integral unit as shown in Figure 1 and can be attached to the body by some strap or other means or, if preferred, can be affixed directly to clothing either removably or permanently as required.

There are many means whereby such a pad device could be affixed to clothing and the method chosen would depend on the requirements of the user.

The exact materials used to make the pad devices, their overall shape, their backing if used or their covering are not germane to this invention except that it is desirable that they provide a cushioning effect and be flexible.

It is envisaged that other embodiments of the invention will exhibit any number of and any combination of the features of the previously described two embodiments.

Whilst we have described herein one specific embodiment of the invention it is to be understood that variations and modifications in this can be made without departing from the spirit and scope thereof.

We claim:

1. A pad device consisting of at least one pad of a flexible material adapted to effectively hinge at one or more position on the device.
2. A pad device as claimed in claim 1 in which the hinge effect is produced by the excision of some of the material of the pad device through part of the depth of the pad device.
3. A pad device as claimed in claim 2 in which such excision produces at least two effective pad elements connected by the excised portion of the pad device.
4. A pad device as claimed in claim 2 in which such excision results in a multiplicity of individual pad elements .
5. A pad device as claimed in claim 1 adapted to be attachable to the human body.
6. A pad device as claimed in claim 1 adapted to be either permanently or removably affixed to clothing.
7. A pad device as claimed in claim 1 in which there are at least two individual pad elements which are not interconnected.

8. A pad device as claimed in claim 7 in which the pad elements are arranged on some backing material.
9. A pad device as claimed in claim 8 in which the backing material is adapted to be permanently affixed to clothing.

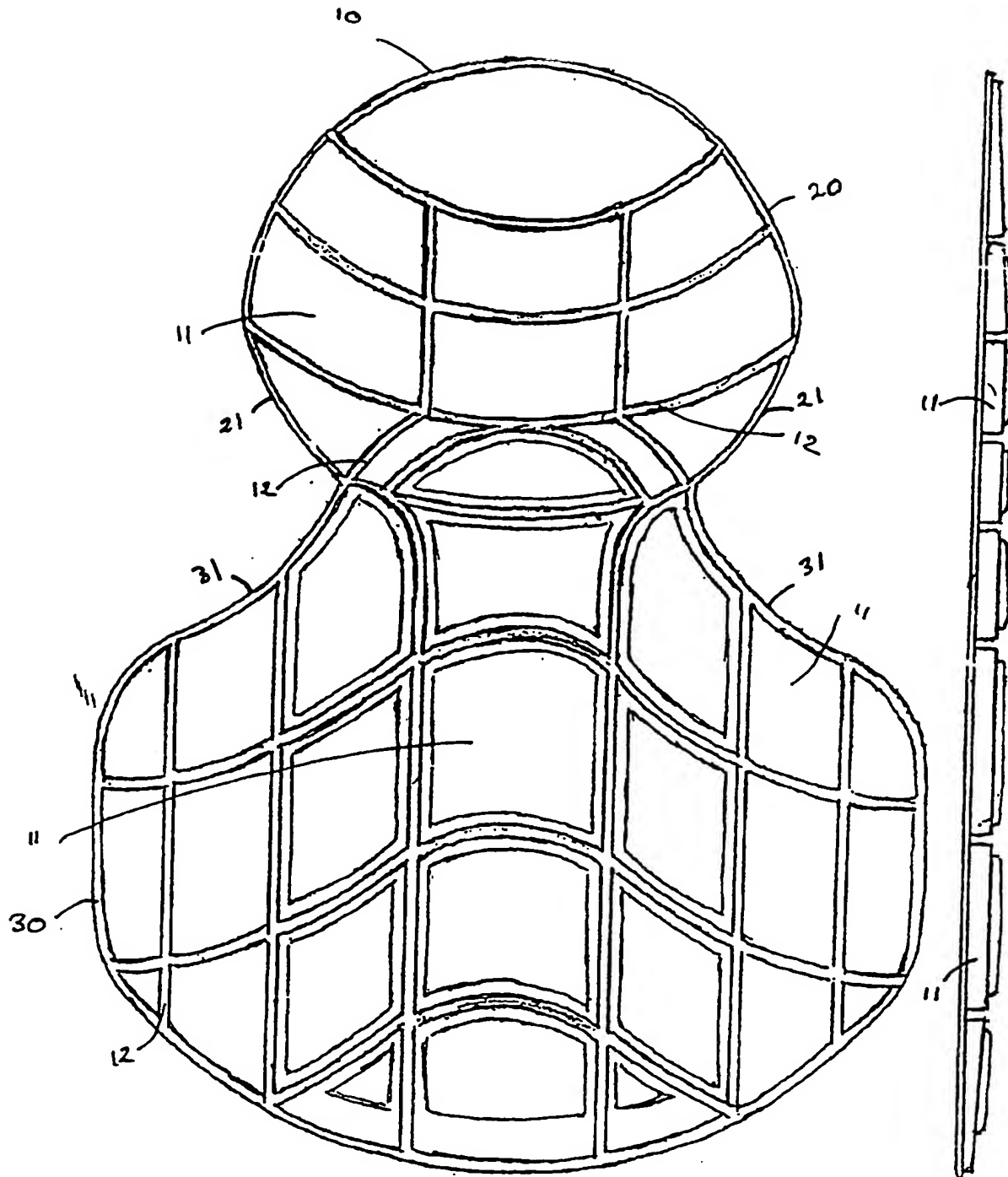


Fig 1

Fig 2

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/AU 95/00847

A. CLASSIFICATION OF SUBJECT MATTERInt Cl⁶: A41D 13/00; A63B 71/08, 71/12

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHEDMinimum documentation searched (classification system followed by classification symbols)
IPC A41D 13/00, 13/06, 13/08; A63B 71/08, 71/12Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
AU:IPC as above

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	AU, A, 80392/94 (FINCORP AUSTRALIA PTY LIMITED) 15 June 1995 see whole document	1-9
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X	US, A. 4608718 (REED) 2 September 1986 see whole document	1-9
X	US, A. 4484359 (TIRINEN) 27 November 1984 see whole document	1-9

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